Claims

What is claimed is:

1. A method for rendering and displaying information using a computer graphics system, the method comprising:

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receiving data corresponding to a plurality of objects to be rendered, wherein the data includes a first data value and a second data value for each object;

using the first and second data values for each object to assign each object a first non-positional rendering attribute and a second non-positional rendering attribute;

10 using the first and second non-positional rendering attributes to select a third non-positional rendering attribute; and

rendering a scene including at least a subset of the plurality of objects, wherein said rendering is performed according the first, second, and third non-positional rendering attributes, and wherein the scene is displayable on a display device.

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2. The method of claim 1, wherein the first non-positional rendering attribute is size.

3. The method of claim 2, wherein the second non-positional rendering attribute is opacity.

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4. The method of claim 3, wherein the third non-positional rendering attribute is level of detail.

5. The method of claim 1, wherein the first and second non-positional rendering attributes are each one of the following: color saturation, drop shadow, animation.

6. The method of claim 1, wherein the first non-positional rendering attribute is an indicator of whether or not to render text for the object.

7. The method of claim 1, wherein the first non-positional rendering attribute is font size.

8. The method of claim 1, wherein the first non-positional rendering attribute is sound volume.

9. The method of claim 1, wherein the first non-positional rendering attribute is blink rate.

10. The method of claim 1, wherein the first non-positional rendering attribute is background blending level.

11. The method of claim 1, wherein the first non-positional rendering attribute is shimmer level.

12. The method of claim 1, wherein the objects are virtual objects.

13. The method of claim 1, further comprising re-rendering a particular object in response to detecting that the corresponding first data value for the particular object has changed, wherein said re-rending includes updating the first non-positional attribute.

14. The method of claim 13, wherein the detecting and re-rendering is performed in real-time.

15. The method of claim 1, further comprising zooming in on a particular object by reconfiguring one or more of the non-positional attributes.

16. A method for displaying network status in real-time, the method comprising:

receiving data corresponding to one or more network components connected to the network, wherein the data includes a status value for one or more of the network components;

rendering a graphical representation of the network, wherein each network component is represented by a graphical icon, and wherein the status value is used to select a first two or more non-spatial rendering attributes for rendering the graphical icon, wherein the rendering includes determining a third non-spatial rendering attribute based on the first two or more non-spatial rendering attributes; and

displaying the graphical representation of the network on a display device.

17. The method of claim 16, receiving updates of the status values; and

repeating the rendering and the displaying using the updated status values, wherein the

repeating is performed in a substantially real-time basis.

5   18. The method of claim 16, wherein the three non-spatial rendering attributes include

one or more of the following: color saturation, hue, drop shadows, animation,

transparency, and whether or not to render text for the three-dimensional graphical

icon.

10   19. The method of claim 16, wherein the graphical representation of the network is a

virtual three-dimensional world, wherein the displaying is performed in stereo, and

wherein the display device is a head-mounted display.

20. The method of claim 16, wherein the non-spatial rendering attributes include font

15   size.

21. The method of claim 16, wherein the non-spatial rendering attributes include sound

volume.

20   22. The method of claim 16, wherein the status values include information about a

number of different network component attributes, and wherein the different network

component attributes are sued during rendering to control a different non-spatial

rendering attribute.

23. The method of claim 16, wherein the network components include servers, clients, switches, routers, and peripherals.

5   24. A method for displaying real estate information, the method comprising:

receiving data corresponding to one or more properties in a neighborhood, wherein the data includes a status value for one or more of the properties, wherein the status value is indicative of whether or not the corresponding property is currently for sale;

10   rendering a graphical representation of the neighborhood, wherein the properties are represented by three-dimensional graphical icons, and wherein the status value is used to select two or more non-positional rendering attributes for rendering the three-dimensional graphical icons;

using the two or more non-positional rendering attributes to select a level of detail for the
15   three-dimensional graphical icons;

displaying the graphical representation of the neighborhood on a display device;

receiving updates of the status values; and

repeating the rendering and the displaying using the updated status values, wherein the repeating is performed in a substantially real-time basis.

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25. The method of claim 24, wherein the status value is also indicative of an asking price for the one or more of the properties, wherein the for sale information portion of the status value is used to select a level of transparency as the first non-positional

rendering attributes, wherein the asking price information portion of the status value is used to select a size as the second non-positional rendering attribute, and wherein the third non-positional rendering attribute is level of detail.

5   26. A computer program embodied on a computer-readable medium, wherein the computer program is configured to:

(a) read data describing a plurality of objects, wherein the data includes at least one non-spatial attribute for at least a subset of the objects;

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(b) use the non-spatial attributes to select a particular group of rendering attributes for the objects, wherein the particular group of rendering attributes includes level of rendering detail, wherein the level of rendering detail is a function of the prominence of the objects;

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(c) render icons for the objects based on the selected groups of rendering attributes; and

(d) repeat (a) - (c) to detect changes in the objects' non-spatial attributes and reflect the changes in the rendered icons.

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27. The computer program of claim 26, wherein the program is configured to perform (a) through (d) in real-time or near real-time.

28. The computer program of claim 26, wherein the program is further configured to:

render a three-dimensional virtual world within which the icons are three-dimensional.

5   29. The computer program of claim 26, wherein the rendering attributes include one or more of the following: color saturation, hue, drop shadows, animation, transparency, and whether or not to render text for the three-dimensional graphical icon.

30. The computer program of claim 26, wherein the program is further configured to zoom in on a particular object in response to user input by reconfiguring one or more of the non-positional attributes in lieu of increasing the size of the particular object.

31. A computer system comprising:

a first memory configured to store data, wherein the data includes information describing

15   one or more objects and one or more non-positional attributes for the one or more objects;

a processor configured to read the data from the first memory, wherein the processor is configured to render pixels depicting the one or more objects, wherein the processor is configured to select one or more auxiliary rendering attributes based

20   on the one or more non-positional attributes;

a second memory configured to store the pixels rendered by the processor; and

a display device, wherein the display device is configured to display the pixels stored in the second memory.

32. The computer system of claim 31, wherein the auxiliary rendering attribute is color saturation.

5   33. The computer system of claim 31, wherein the auxiliary rendering attribute is a drop shadow.

34. The computer system of claim 31, wherein the auxiliary rendering attribute is animation.

10   35. The computer system of claim 31, wherein the auxiliary rendering attribute is opacity.

36. The computer system of claim 31, wherein the auxiliary rendering attribute is transparency.

15   37. The computer system of claim 31, wherein the auxiliary rendering attribute is an indicator of whether or not to render text for the object.

38. The computer system of claim 31, wherein the auxiliary rendering attribute is font

20   size.

39. The computer system of claim 31, wherein the auxiliary rendering attribute is sound volume.

40. The computer system of claim 31, wherein the auxiliary rendering attribute is blink rate.

5   41. The computer system of claim 31, wherein the auxiliary rendering attribute is background blending level.

42. The computer system of claim 31, wherein the auxiliary rendering attribute is shimmering.

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43. The computer system of claim 31, wherein the processor is configured to read updated data from the first memory, wherein the processor is configured to use the updated data to re-render the pixels depicting the one or more objects, wherein the processor is configured to select one or more updated auxiliary rendering attributes 15   based on the updated data.

44. The computer system of claim 43, wherein the updating and re-rendering is performed substantially in real-time.

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